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Ejercicio 1

|  |
| --- |
| The SAS System |

| **Obs** | **edad** | **fuma** | **cantidad** |
| --- | --- | --- | --- |
| **1** | Jovnofum | Muertopr | 50 |
| **2** | Jovnofum | Vivoprem | 315 |
| **3** | Jovnofum | Bebemuer | 24 |
| **4** | Jovnofum | Bebevivo | 4012 |
| **5** | Jovfuma | Muertopr | 9 |
| **6** | Jovfuma | Vivoprem | 40 |
| **7** | Jovfuma | Bebemuer | 6 |
| **8** | Jovfuma | Bebevivo | 459 |
| **9** | Maynofum | Muertopr | 41 |
| **10** | Maynofum | Vivoprem | 147 |
| **11** | Maynofum | Bebemuer | 14 |
| **12** | Maynofum | Bebevivo | 1594 |
| **13** | Mayfuma | Muertopr | 4 |
| **14** | Mayfuma | Vivoprem | 11 |
| **15** | Mayfuma | Bebemuer | 1 |
| **16** | Mayfuma | Bebevivo | 124 |

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| The SAS System |

The CORRESP Procedure

| **Contingency Table** | | | | | |
| --- | --- | --- | --- | --- | --- |
|  | **Bebemuer** | **Bebevivo** | **Muertopr** | **Vivoprem** | **Sum** |
| **Jovfuma** | 6 | 459 | 9 | 40 | 514 |
| **Jovnofum** | 24 | 4012 | 50 | 315 | 4401 |
| **Mayfuma** | 1 | 124 | 4 | 11 | 140 |
| **Maynofum** | 14 | 1594 | 41 | 147 | 1796 |
| **Sum** | 45 | 6189 | 104 | 513 | 6851 |

| **Contingency Table** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Percents** | **Bebemuer** | **Bebevivo** | **Muertopr** | **Vivoprem** | **Sum** |
| **Jovfuma** | 0.088 | 6.700 | 0.131 | 0.584 | 7.503 |
| **Jovnofum** | 0.350 | 58.561 | 0.730 | 4.598 | 64.239 |
| **Mayfuma** | 0.015 | 1.810 | 0.058 | 0.161 | 2.043 |
| **Maynofum** | 0.204 | 23.267 | 0.598 | 2.146 | 26.215 |
| **Sum** | 0.657 | 90.337 | 1.518 | 7.488 | 100.000 |

| **Chi-Square Statistic Expected Values** | | | | |
| --- | --- | --- | --- | --- |
|  | **Bebemuer** | **Bebevivo** | **Muertopr** | **Vivoprem** |
| **Jovfuma** | 3.38 | 464.33 | 7.80 | 38.49 |
| **Jovnofum** | 28.91 | 3975.74 | 66.81 | 329.55 |
| **Mayfuma** | 0.92 | 126.47 | 2.13 | 10.48 |
| **Maynofum** | 11.80 | 1622.46 | 27.26 | 134.48 |

| **Chi-Square Statistic Expected Values** | | | | |
| --- | --- | --- | --- | --- |
| **Percents** | **Bebemuer** | **Bebevivo** | **Muertopr** | **Vivoprem** |
| **Jovfuma** | 0.0493 | 6.7776 | 0.1139 | 0.5618 |
| **Jovnofum** | 0.4219 | 58.0315 | 0.9752 | 4.8102 |
| **Mayfuma** | 0.0134 | 1.8460 | 0.0310 | 0.1530 |
| **Maynofum** | 0.1722 | 23.6820 | 0.3980 | 1.9630 |

| **Observed Minus Expected Values** | | | | |
| --- | --- | --- | --- | --- |
|  | **Bebemuer** | **Bebevivo** | **Muertopr** | **Vivoprem** |
| **Jovfuma** | 2.6239 | -5.3331 | 1.1973 | 1.5119 |
| **Jovnofum** | -4.9075 | 36.2608 | -16.8083 | -14.5450 |
| **Mayfuma** | 0.0804 | -2.4720 | 1.8748 | 0.5169 |
| **Maynofum** | 2.2032 | -28.4557 | 13.7362 | 12.5163 |

| **Observed Minus Expected Values** | | | | |
| --- | --- | --- | --- | --- |
| **Percents** | **Bebemuer** | **Bebevivo** | **Muertopr** | **Vivoprem** |
| **Jovfuma** | 0.038299 | -.077844 | 0.017477 | 0.022068 |
| **Jovnofum** | -.071631 | 0.529278 | -.245342 | -.212305 |
| **Mayfuma** | 0.001174 | -.036083 | 0.027365 | 0.007544 |
| **Maynofum** | 0.032159 | -.415351 | 0.200500 | 0.182693 |

| **Contributions to the Total Chi-Square Statistic** | | | | | |
| --- | --- | --- | --- | --- | --- |
|  | **Bebemuer** | **Bebevivo** | **Muertopr** | **Vivoprem** | **Sum** |
| **Jovfuma** | 2.0392 | 0.0613 | 0.1837 | 0.0594 | 2.3436 |
| **Jovnofum** | 0.8331 | 0.3307 | 4.2288 | 0.6420 | 6.0346 |
| **Mayfuma** | 0.0070 | 0.0483 | 1.6538 | 0.0255 | 1.7346 |
| **Maynofum** | 0.4115 | 0.4991 | 6.9207 | 1.1649 | 8.9961 |
| **Sum** | 3.2908 | 0.9394 | 12.9871 | 1.8917 | 19.1090 |

| **Contributions to the Total Chi-Square Statistic** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Percents** | **Bebemuer** | **Bebevivo** | **Muertopr** | **Vivoprem** | **Sum** |
| **Jovfuma** | 10.671 | 0.321 | 0.962 | 0.311 | 12.264 |
| **Jovnofum** | 4.360 | 1.731 | 22.130 | 3.360 | 31.580 |
| **Mayfuma** | 0.037 | 0.253 | 8.655 | 0.133 | 9.078 |
| **Maynofum** | 2.153 | 2.612 | 36.217 | 6.096 | 47.078 |
| **Sum** | 17.221 | 4.916 | 67.963 | 9.900 | 100.000 |

| **Row Profiles** | | | | |
| --- | --- | --- | --- | --- |
|  | **Bebemuer** | **Bebevivo** | **Muertopr** | **Vivoprem** |
| **Jovfuma** | 0.011673 | 0.892996 | 0.017510 | 0.077821 |
| **Jovnofum** | 0.005453 | 0.911611 | 0.011361 | 0.071575 |
| **Mayfuma** | 0.007143 | 0.885714 | 0.028571 | 0.078571 |
| **Maynofum** | 0.007795 | 0.887528 | 0.022829 | 0.081849 |

| **Row Profiles** | | | | |
| --- | --- | --- | --- | --- |
| **Percents** | **Bebemuer** | **Bebevivo** | **Muertopr** | **Vivoprem** |
| **Jovfuma** | 1.1673 | 89.2996 | 1.7510 | 7.7821 |
| **Jovnofum** | 0.5453 | 91.1611 | 1.1361 | 7.1575 |
| **Mayfuma** | 0.7143 | 88.5714 | 2.8571 | 7.8571 |
| **Maynofum** | 0.7795 | 88.7528 | 2.2829 | 8.1849 |

| **Column Profiles** | | | | |
| --- | --- | --- | --- | --- |
|  | **Bebemuer** | **Bebevivo** | **Muertopr** | **Vivoprem** |
| **Jovfuma** | 0.133333 | 0.074164 | 0.086538 | 0.077973 |
| **Jovnofum** | 0.533333 | 0.648247 | 0.480769 | 0.614035 |
| **Mayfuma** | 0.022222 | 0.020036 | 0.038462 | 0.021442 |
| **Maynofum** | 0.311111 | 0.257554 | 0.394231 | 0.286550 |

| **Column Profiles** | | | | |
| --- | --- | --- | --- | --- |
| **Percents** | **Bebemuer** | **Bebevivo** | **Muertopr** | **Vivoprem** |
| **Jovfuma** | 13.3333 | 7.4164 | 8.6538 | 7.7973 |
| **Jovnofum** | 53.3333 | 64.8247 | 48.0769 | 61.4035 |
| **Mayfuma** | 2.2222 | 2.0036 | 3.8462 | 2.1442 |
| **Maynofum** | 31.1111 | 25.7554 | 39.4231 | 28.6550 |

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| The SAS System |

The CORRESP Procedure

| **Inertia and Chi-Square Decomposition** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Singular Value** | **Principal Inertia** | **Chi- Square** | **Percent** | **Cumulative Percent** | **18   36   54   72   90    ----+----+----+----+----+---** |
| 0.05032 | 0.00253 | 17.3467 | 90.78 | 90.78 | \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* |
| 0.01562 | 0.00024 | 1.6708 | 8.74 | 99.52 | \*\* |
| 0.00365 | 0.00001 | 0.0914 | 0.48 | 100.00 |  |
| Total | 0.00279 | 19.1090 | 100.00 |  |  |
| **Degrees of Freedom = 9** | | | | | |
| **Pr > ChiSq = .0243** | | | | | |

| **Row Coordinates** | | |
| --- | --- | --- |
|  | **Dim1** | **Dim2** |
| **Jovfuma** | 0.0427 | 0.0523 |
| **Jovnofum** | -0.0370 | -0.0019 |
| **Mayfuma** | 0.1042 | -0.0316 |
| **Maynofum** | 0.0703 | -0.0079 |

| **Summary Statistics for the Row Points** | | | |
| --- | --- | --- | --- |
|  | **Quality** | **Mass** | **Inertia** |
| **Jovfuma** | 0.9988 | 0.0750 | 0.1226 |
| **Jovnofum** | 1.0000 | 0.6424 | 0.3158 |
| **Mayfuma** | 0.9574 | 0.0204 | 0.0908 |
| **Maynofum** | 0.9984 | 0.2622 | 0.4708 |

| **Partial Contributions to Inertia for the Row Points** | | |
| --- | --- | --- |
|  | **Dim1** | **Dim2** |
| **Jovfuma** | 0.0540 | 0.8402 |
| **Jovnofum** | 0.3470 | 0.0094 |
| **Mayfuma** | 0.0877 | 0.0839 |
| **Maynofum** | 0.5114 | 0.0665 |

| **Indices of the Coordinates That Contribute Most to Inertia for the Row Points** | | | |
| --- | --- | --- | --- |
|  | **Dim1** | **Dim2** | **Best** |
| **Jovfuma** | 0 | 2 | 2 |
| **Jovnofum** | 1 | 0 | 1 |
| **Mayfuma** | 0 | 0 | 1 |
| **Maynofum** | 1 | 0 | 1 |

| **Squared Cosines for the Row Points** | | |
| --- | --- | --- |
|  | **Dim1** | **Dim2** |
| **Jovfuma** | 0.3998 | 0.5990 |
| **Jovnofum** | 0.9974 | 0.0026 |
| **Mayfuma** | 0.8766 | 0.0808 |
| **Maynofum** | 0.9860 | 0.0123 |

| **Column Coordinates** | | |
| --- | --- | --- |
|  | **Dim1** | **Dim2** |
| **Bebemuer** | 0.2017 | 0.1800 |
| **Bebevivo** | -0.0123 | -0.0005 |
| **Muertopr** | 0.3504 | -0.0450 |
| **Vivoprem** | 0.0595 | -0.0010 |

| **Summary Statistics for the Column Points** | | | |
| --- | --- | --- | --- |
|  | **Quality** | **Mass** | **Inertia** |
| **Bebemuer** | 0.9996 | 0.0066 | 0.1722 |
| **Bebevivo** | 0.9959 | 0.9034 | 0.0492 |
| **Muertopr** | 0.9991 | 0.0152 | 0.6796 |
| **Vivoprem** | 0.9604 | 0.0749 | 0.0990 |

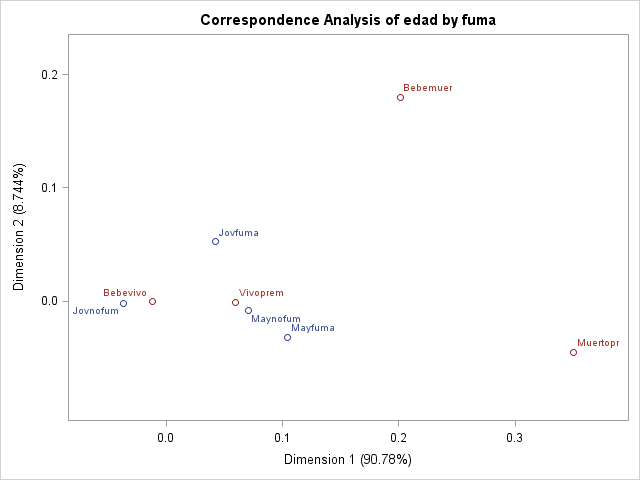
| **Partial Contributions to Inertia for the Column Points** | | |
| --- | --- | --- |
|  | **Dim1** | **Dim2** |
| **Bebemuer** | 0.1055 | 0.8730 |
| **Bebevivo** | 0.0539 | 0.0008 |
| **Muertopr** | 0.7359 | 0.1258 |
| **Vivoprem** | 0.1047 | 0.0003 |

| **Indices of the Coordinates That Contribute Most to Inertia for the Column Points** | | | |
| --- | --- | --- | --- |
|  | **Dim1** | **Dim2** | **Best** |
| **Bebemuer** | 2 | 2 | 2 |
| **Bebevivo** | 0 | 0 | 1 |
| **Muertopr** | 1 | 0 | 1 |
| **Vivoprem** | 0 | 0 | 1 |

| **Squared Cosines for the Column Points** | | |
| --- | --- | --- |
|  | **Dim1** | **Dim2** |
| **Bebemuer** | 0.5563 | 0.4433 |
| **Bebevivo** | 0.9945 | 0.0014 |
| **Muertopr** | 0.9829 | 0.0162 |
| **Vivoprem** | 0.9601 | 0.0003 |

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| The SAS System |

The CORRESP Procedure



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| --- | --- | --- | --- | --- |
| **Conclusiones:** |  |  |  |  |
| Se puede concluir que hay dependencia entre las variables | | |  |  |
| Las mujeres jovenes que no fuman tienen mas probabilidad de tener los bebes vivos | | | |  |
| Las mujeres mayores que no fuman tienen mas probabilidad de tener los bebes muertos | | | |  |

Se concluí que la edad es la variable que tiene mas dependencia.

Ejercicio 2

/\*Ejercicio2\*/

**data** salario;

input cantidad $ x1-x6;

label x1='SMIP<1' x2='SMIP1-2' x=**3**'SMIP2-3' x4='SMIP3-4' x5='SMIP4-5 ' x6='SMIP>5'

;

datalines;

<25H 150 156 20 2 2 0

25-33H 117 363 207 59 16 10

33-41H 86 235 288 118 44 42

41-49H 57 184 229 122 62 64

49-57H 55 159 164 83 29 47

>57H 19 93 73 19 15 25

<25M 114 86 10 0 0 0

25-33M 124 185 78 26 1 5

33-41M 64 138 117 53 18 10

41-49M 52 84 82 44 13 5

49-57M 48 55 26 21 7 2

>57M 29 29 10 4 4 1

;

**proc** **print**; **run**;

**proc** **corresp** data=salario all chi2p print=both;

var x1 x2 x3 x4 x5 x6;

id cantidad;

**run**;

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| The SAS System |

| **Obs** | **cantidad** | **x1** | **x2** | **x3** | **x4** | **x5** | **x6** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **1** | <25H | 150 | 156 | 20 | 2 | 2 | 0 |
| **2** | 25-33H | 117 | 363 | 207 | 59 | 16 | 10 |
| **3** | 33-41H | 86 | 235 | 288 | 118 | 44 | 42 |
| **4** | 41-49H | 57 | 184 | 229 | 122 | 62 | 64 |
| **5** | 49-57H | 55 | 159 | 164 | 83 | 29 | 47 |
| **6** | >57H | 19 | 93 | 73 | 19 | 15 | 25 |
| **7** | <25M | 114 | 86 | 10 | 0 | 0 | 0 |
| **8** | 25-33M | 124 | 185 | 78 | 26 | 1 | 5 |
| **9** | 33-41M | 64 | 138 | 117 | 53 | 18 | 10 |
| **10** | 41-49M | 52 | 84 | 82 | 44 | 13 | 5 |
| **11** | 49-57M | 48 | 55 | 26 | 21 | 7 | 2 |
| **12** | >57M | 29 | 29 | 10 | 4 | 4 | 1 |

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| The SAS System |

The CORRESP Procedure

| **Contingency Table** | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **SMIP<1** | **SMIP1-2** | **x3** | **SMIP3-4** | **SMIP4-5** | **SMIP>5** | **Sum** |
| **<25H** | 150 | 156 | 20 | 2 | 2 | 0 | 330 |
| **25-33H** | 117 | 363 | 207 | 59 | 16 | 10 | 772 |
| **33-41H** | 86 | 235 | 288 | 118 | 44 | 42 | 813 |
| **41-49H** | 57 | 184 | 229 | 122 | 62 | 64 | 718 |
| **49-57H** | 55 | 159 | 164 | 83 | 29 | 47 | 537 |
| **>57H** | 19 | 93 | 73 | 19 | 15 | 25 | 244 |
| **<25M** | 114 | 86 | 10 | 0 | 0 | 0 | 210 |
| **25-33M** | 124 | 185 | 78 | 26 | 1 | 5 | 419 |
| **33-41M** | 64 | 138 | 117 | 53 | 18 | 10 | 400 |
| **41-49M** | 52 | 84 | 82 | 44 | 13 | 5 | 280 |
| **49-57M** | 48 | 55 | 26 | 21 | 7 | 2 | 159 |
| **>57M** | 29 | 29 | 10 | 4 | 4 | 1 | 77 |
| **Sum** | 915 | 1767 | 1304 | 551 | 211 | 211 | 4959 |

| **Contingency Table** | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Percents** | **SMIP<1** | **SMIP1-2** | **x3** | **SMIP3-4** | **SMIP4-5** | **SMIP>5** | **Sum** |
| **<25H** | 3.025 | 3.146 | 0.403 | 0.040 | 0.040 | 0.000 | 6.655 |
| **25-33H** | 2.359 | 7.320 | 4.174 | 1.190 | 0.323 | 0.202 | 15.568 |
| **33-41H** | 1.734 | 4.739 | 5.808 | 2.380 | 0.887 | 0.847 | 16.394 |
| **41-49H** | 1.149 | 3.710 | 4.618 | 2.460 | 1.250 | 1.291 | 14.479 |
| **49-57H** | 1.109 | 3.206 | 3.307 | 1.674 | 0.585 | 0.948 | 10.829 |
| **>57H** | 0.383 | 1.875 | 1.472 | 0.383 | 0.302 | 0.504 | 4.920 |
| **<25M** | 2.299 | 1.734 | 0.202 | 0.000 | 0.000 | 0.000 | 4.235 |
| **25-33M** | 2.501 | 3.731 | 1.573 | 0.524 | 0.020 | 0.101 | 8.449 |
| **33-41M** | 1.291 | 2.783 | 2.359 | 1.069 | 0.363 | 0.202 | 8.066 |
| **41-49M** | 1.049 | 1.694 | 1.654 | 0.887 | 0.262 | 0.101 | 5.646 |
| **49-57M** | 0.968 | 1.109 | 0.524 | 0.423 | 0.141 | 0.040 | 3.206 |
| **>57M** | 0.585 | 0.585 | 0.202 | 0.081 | 0.081 | 0.020 | 1.553 |
| **Sum** | 18.451 | 35.632 | 26.296 | 11.111 | 4.255 | 4.255 | 100.000 |

| **Chi-Square Statistic Expected Values** | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
|  | **SMIP<1** | **SMIP1-2** | **x3** | **SMIP3-4** | **SMIP4-5** | **SMIP>5** |
| **<25H** | 60.889 | 117.586 | 86.776 | 36.667 | 14.041 | 14.041 |
| **25-33H** | 142.444 | 275.080 | 203.002 | 85.778 | 32.848 | 32.848 |
| **33-41H** | 150.009 | 289.690 | 213.783 | 90.333 | 34.592 | 34.592 |
| **41-49H** | 132.480 | 255.839 | 188.803 | 79.778 | 30.550 | 30.550 |
| **49-57H** | 99.083 | 191.345 | 141.208 | 59.667 | 22.849 | 22.849 |
| **>57H** | 45.021 | 86.943 | 64.161 | 27.111 | 10.382 | 10.382 |
| **<25M** | 38.748 | 74.828 | 55.221 | 23.333 | 8.935 | 8.935 |
| **25-33M** | 77.311 | 149.299 | 110.179 | 46.556 | 17.828 | 17.828 |
| **33-41M** | 73.805 | 142.529 | 105.182 | 44.444 | 17.020 | 17.020 |
| **41-49M** | 51.664 | 99.770 | 73.628 | 31.111 | 11.914 | 11.914 |
| **49-57M** | 29.338 | 56.655 | 41.810 | 17.667 | 6.765 | 6.765 |
| **>57M** | 14.208 | 27.437 | 20.248 | 8.556 | 3.276 | 3.276 |

| **Chi-Square Statistic Expected Values** | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| **Percents** | **SMIP<1** | **SMIP1-2** | **x3** | **SMIP3-4** | **SMIP4-5** | **SMIP>5** |
| **<25H** | 1.22785 | 2.37117 | 1.74986 | 0.73940 | 0.28314 | 0.28314 |
| **25-33H** | 2.87243 | 5.54710 | 4.09361 | 1.72974 | 0.66239 | 0.66239 |
| **33-41H** | 3.02499 | 5.84170 | 4.31102 | 1.82160 | 0.69757 | 0.69757 |
| **41-49H** | 2.67151 | 5.15909 | 3.80727 | 1.60875 | 0.61605 | 0.61605 |
| **49-57H** | 1.99805 | 3.85854 | 2.84750 | 1.20320 | 0.46075 | 0.46075 |
| **>57H** | 0.90787 | 1.75323 | 1.29384 | 0.54671 | 0.20936 | 0.20936 |
| **<25M** | 0.78136 | 1.50892 | 1.11355 | 0.47052 | 0.18018 | 0.18018 |
| **25-33M** | 1.55900 | 3.01066 | 2.22179 | 0.93881 | 0.35951 | 0.35951 |
| **33-41M** | 1.48831 | 2.87414 | 2.12104 | 0.89624 | 0.34321 | 0.34321 |
| **41-49M** | 1.04182 | 2.01190 | 1.48473 | 0.62737 | 0.24024 | 0.24024 |
| **49-57M** | 0.59160 | 1.14247 | 0.84311 | 0.35625 | 0.13642 | 0.13642 |
| **>57M** | 0.28650 | 0.55327 | 0.40830 | 0.17253 | 0.06607 | 0.06607 |

| **Observed Minus Expected Values** | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
|  | **SMIP<1** | **SMIP1-2** | **x3** | **SMIP3-4** | **SMIP4-5** | **SMIP>5** |
| **<25H** | 89.1107 | 38.4138 | -66.7756 | -34.6667 | -12.0411 | -14.0411 |
| **25-33H** | -25.4440 | 87.9195 | 3.9978 | -26.7778 | -16.8478 | -22.8478 |
| **33-41H** | -64.0091 | -54.6897 | 74.2166 | 27.6667 | 9.4077 | 7.4077 |
| **41-49H** | -75.4803 | -71.8391 | 40.1974 | 42.2222 | 31.4499 | 33.4499 |
| **49-57H** | -44.0835 | -32.3448 | 22.7925 | 23.3333 | 6.1512 | 24.1512 |
| **>57H** | -26.0212 | 6.0575 | 8.8387 | -8.1111 | 4.6181 | 14.6181 |
| **<25M** | 75.2523 | 11.1724 | -45.2208 | -23.3333 | -8.9353 | -8.9353 |
| **25-33M** | 46.6891 | 35.7011 | -32.1787 | -20.5556 | -16.8280 | -12.8280 |
| **33-41M** | -9.8052 | -4.5287 | 11.8175 | 8.5556 | 0.9804 | -7.0196 |
| **41-49M** | 0.3364 | -15.7701 | 8.3723 | 12.8889 | 1.0863 | -6.9137 |
| **49-57M** | 18.6624 | -1.6552 | -15.8100 | 3.3333 | 0.2347 | -4.7653 |
| **>57M** | 14.7925 | 1.5632 | -10.2476 | -4.5556 | 0.7237 | -2.2763 |

| **Observed Minus Expected Values** | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| **Percents** | **SMIP<1** | **SMIP1-2** | **x3** | **SMIP3-4** | **SMIP4-5** | **SMIP>5** |
| **<25H** | 1.79695 | 0.77463 | -1.34655 | -0.69907 | -0.24281 | -0.28314 |
| **25-33H** | -0.51309 | 1.77293 | 0.08062 | -0.53998 | -0.33974 | -0.46073 |
| **33-41H** | -1.29077 | -1.10284 | 1.49660 | 0.55791 | 0.18971 | 0.14938 |
| **41-49H** | -1.52209 | -1.44866 | 0.81060 | 0.85143 | 0.63420 | 0.67453 |
| **49-57H** | -0.88896 | -0.65224 | 0.45962 | 0.47052 | 0.12404 | 0.48702 |
| **>57H** | -0.52473 | 0.12215 | 0.17824 | -0.16356 | 0.09312 | 0.29478 |
| **<25M** | 1.51749 | 0.22530 | -0.91189 | -0.47052 | -0.18018 | -0.18018 |
| **25-33M** | 0.94150 | 0.71993 | -0.64889 | -0.41451 | -0.33934 | -0.25868 |
| **33-41M** | -0.19773 | -0.09132 | 0.23830 | 0.17253 | 0.01977 | -0.14155 |
| **41-49M** | 0.00678 | -0.31801 | 0.16883 | 0.25991 | 0.02191 | -0.13942 |
| **49-57M** | 0.37633 | -0.03338 | -0.31882 | 0.06722 | 0.00473 | -0.09609 |
| **>57M** | 0.29830 | 0.03152 | -0.20665 | -0.09186 | 0.01459 | -0.04590 |

| **Contributions to the Total Chi-Square Statistic** | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **SMIP<1** | **SMIP1-2** | **x3** | **SMIP3-4** | **SMIP4-5** | **SMIP>5** | **Sum** |
| **<25H** | 130.41 | 12.55 | 51.39 | 32.78 | 10.33 | 14.04 | 251.49 |
| **25-33H** | 4.54 | 28.10 | 0.08 | 8.36 | 8.64 | 15.89 | 65.62 |
| **33-41H** | 27.31 | 10.32 | 25.76 | 8.47 | 2.56 | 1.59 | 76.02 |
| **41-49H** | 43.00 | 20.17 | 8.56 | 22.35 | 32.38 | 36.62 | 163.08 |
| **49-57H** | 19.61 | 5.47 | 3.68 | 9.12 | 1.66 | 25.53 | 65.07 |
| **>57H** | 15.04 | 0.42 | 1.22 | 2.43 | 2.05 | 20.58 | 41.74 |
| **<25M** | 146.15 | 1.67 | 37.03 | 23.33 | 8.94 | 8.94 | 226.05 |
| **25-33M** | 28.20 | 8.54 | 9.40 | 9.08 | 15.88 | 9.23 | 80.32 |
| **33-41M** | 1.30 | 0.14 | 1.33 | 1.65 | 0.06 | 2.90 | 7.37 |
| **41-49M** | 0.00 | 2.49 | 0.95 | 5.34 | 0.10 | 4.01 | 12.90 |
| **49-57M** | 11.87 | 0.05 | 5.98 | 0.63 | 0.01 | 3.36 | 21.89 |
| **>57M** | 15.40 | 0.09 | 5.19 | 2.43 | 0.16 | 1.58 | 24.84 |
| **Sum** | 442.85 | 90.02 | 150.56 | 125.96 | 82.76 | 144.27 | 1036.40 |

| **Contributions to the Total Chi-Square Statistic** | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Percents** | **SMIP<1** | **SMIP1-2** | **x3** | **SMIP3-4** | **SMIP4-5** | **SMIP>5** | **Sum** |
| **<25H** | 12.583 | 1.211 | 4.958 | 3.162 | 0.996 | 1.355 | 24.266 |
| **25-33H** | 0.439 | 2.711 | 0.008 | 0.807 | 0.834 | 1.533 | 6.331 |
| **33-41H** | 2.635 | 0.996 | 2.486 | 0.818 | 0.247 | 0.153 | 7.335 |
| **41-49H** | 4.149 | 1.946 | 0.826 | 2.156 | 3.124 | 3.534 | 15.735 |
| **49-57H** | 1.892 | 0.528 | 0.355 | 0.880 | 0.160 | 2.463 | 6.278 |
| **>57H** | 1.451 | 0.041 | 0.117 | 0.234 | 0.198 | 1.986 | 4.028 |
| **<25M** | 14.101 | 0.161 | 3.573 | 2.251 | 0.862 | 0.862 | 21.811 |
| **25-33M** | 2.721 | 0.824 | 0.907 | 0.876 | 1.533 | 0.891 | 7.750 |
| **33-41M** | 0.126 | 0.014 | 0.128 | 0.159 | 0.005 | 0.279 | 0.711 |
| **41-49M** | 0.000 | 0.241 | 0.092 | 0.515 | 0.010 | 0.387 | 1.244 |
| **49-57M** | 1.145 | 0.005 | 0.577 | 0.061 | 0.001 | 0.324 | 2.112 |
| **>57M** | 1.486 | 0.009 | 0.500 | 0.234 | 0.015 | 0.153 | 2.397 |
| **Sum** | 42.730 | 8.685 | 14.527 | 12.153 | 7.985 | 13.920 | 100.000 |

| **Row Profiles** | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
|  | **SMIP<1** | **SMIP1-2** | **x3** | **SMIP3-4** | **SMIP4-5** | **SMIP>5** |
| **<25H** | 0.454545 | 0.472727 | 0.060606 | 0.006061 | 0.006061 | 0.000000 |
| **25-33H** | 0.151554 | 0.470207 | 0.268135 | 0.076425 | 0.020725 | 0.012953 |
| **33-41H** | 0.105781 | 0.289053 | 0.354244 | 0.145141 | 0.054121 | 0.051661 |
| **41-49H** | 0.079387 | 0.256267 | 0.318942 | 0.169916 | 0.086351 | 0.089136 |
| **49-57H** | 0.102421 | 0.296089 | 0.305400 | 0.154562 | 0.054004 | 0.087523 |
| **>57H** | 0.077869 | 0.381148 | 0.299180 | 0.077869 | 0.061475 | 0.102459 |
| **<25M** | 0.542857 | 0.409524 | 0.047619 | 0.000000 | 0.000000 | 0.000000 |
| **25-33M** | 0.295943 | 0.441527 | 0.186158 | 0.062053 | 0.002387 | 0.011933 |
| **33-41M** | 0.160000 | 0.345000 | 0.292500 | 0.132500 | 0.045000 | 0.025000 |
| **41-49M** | 0.185714 | 0.300000 | 0.292857 | 0.157143 | 0.046429 | 0.017857 |
| **49-57M** | 0.301887 | 0.345912 | 0.163522 | 0.132075 | 0.044025 | 0.012579 |
| **>57M** | 0.376623 | 0.376623 | 0.129870 | 0.051948 | 0.051948 | 0.012987 |

| **Row Profiles** | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| **Percents** | **SMIP<1** | **SMIP1-2** | **x3** | **SMIP3-4** | **SMIP4-5** | **SMIP>5** |
| **<25H** | 45.4545 | 47.2727 | 6.0606 | 0.6061 | 0.6061 | 0.0000 |
| **25-33H** | 15.1554 | 47.0207 | 26.8135 | 7.6425 | 2.0725 | 1.2953 |
| **33-41H** | 10.5781 | 28.9053 | 35.4244 | 14.5141 | 5.4121 | 5.1661 |
| **41-49H** | 7.9387 | 25.6267 | 31.8942 | 16.9916 | 8.6351 | 8.9136 |
| **49-57H** | 10.2421 | 29.6089 | 30.5400 | 15.4562 | 5.4004 | 8.7523 |
| **>57H** | 7.7869 | 38.1148 | 29.9180 | 7.7869 | 6.1475 | 10.2459 |
| **<25M** | 54.2857 | 40.9524 | 4.7619 | 0.0000 | 0.0000 | 0.0000 |
| **25-33M** | 29.5943 | 44.1527 | 18.6158 | 6.2053 | 0.2387 | 1.1933 |
| **33-41M** | 16.0000 | 34.5000 | 29.2500 | 13.2500 | 4.5000 | 2.5000 |
| **41-49M** | 18.5714 | 30.0000 | 29.2857 | 15.7143 | 4.6429 | 1.7857 |
| **49-57M** | 30.1887 | 34.5912 | 16.3522 | 13.2075 | 4.4025 | 1.2579 |
| **>57M** | 37.6623 | 37.6623 | 12.9870 | 5.1948 | 5.1948 | 1.2987 |

| **Column Profiles** | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
|  | **SMIP<1** | **SMIP1-2** | **x3** | **SMIP3-4** | **SMIP4-5** | **SMIP>5** |
| **<25H** | 0.163934 | 0.088285 | 0.015337 | 0.003630 | 0.009479 | 0.000000 |
| **25-33H** | 0.127869 | 0.205433 | 0.158742 | 0.107078 | 0.075829 | 0.047393 |
| **33-41H** | 0.093989 | 0.132994 | 0.220859 | 0.214156 | 0.208531 | 0.199052 |
| **41-49H** | 0.062295 | 0.104131 | 0.175613 | 0.221416 | 0.293839 | 0.303318 |
| **49-57H** | 0.060109 | 0.089983 | 0.125767 | 0.150635 | 0.137441 | 0.222749 |
| **>57H** | 0.020765 | 0.052632 | 0.055982 | 0.034483 | 0.071090 | 0.118483 |
| **<25M** | 0.124590 | 0.048670 | 0.007669 | 0.000000 | 0.000000 | 0.000000 |
| **25-33M** | 0.135519 | 0.104697 | 0.059816 | 0.047187 | 0.004739 | 0.023697 |
| **33-41M** | 0.069945 | 0.078098 | 0.089724 | 0.096189 | 0.085308 | 0.047393 |
| **41-49M** | 0.056831 | 0.047538 | 0.062883 | 0.079855 | 0.061611 | 0.023697 |
| **49-57M** | 0.052459 | 0.031126 | 0.019939 | 0.038113 | 0.033175 | 0.009479 |
| **>57M** | 0.031694 | 0.016412 | 0.007669 | 0.007260 | 0.018957 | 0.004739 |

| **Column Profiles** | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| **Percents** | **SMIP<1** | **SMIP1-2** | **x3** | **SMIP3-4** | **SMIP4-5** | **SMIP>5** |
| **<25H** | 16.3934 | 8.8285 | 1.5337 | 0.3630 | 0.9479 | 0.0000 |
| **25-33H** | 12.7869 | 20.5433 | 15.8742 | 10.7078 | 7.5829 | 4.7393 |
| **33-41H** | 9.3989 | 13.2994 | 22.0859 | 21.4156 | 20.8531 | 19.9052 |
| **41-49H** | 6.2295 | 10.4131 | 17.5613 | 22.1416 | 29.3839 | 30.3318 |
| **49-57H** | 6.0109 | 8.9983 | 12.5767 | 15.0635 | 13.7441 | 22.2749 |
| **>57H** | 2.0765 | 5.2632 | 5.5982 | 3.4483 | 7.1090 | 11.8483 |
| **<25M** | 12.4590 | 4.8670 | 0.7669 | 0.0000 | 0.0000 | 0.0000 |
| **25-33M** | 13.5519 | 10.4697 | 5.9816 | 4.7187 | 0.4739 | 2.3697 |
| **33-41M** | 6.9945 | 7.8098 | 8.9724 | 9.6189 | 8.5308 | 4.7393 |
| **41-49M** | 5.6831 | 4.7538 | 6.2883 | 7.9855 | 6.1611 | 2.3697 |
| **49-57M** | 5.2459 | 3.1126 | 1.9939 | 3.8113 | 3.3175 | 0.9479 |
| **>57M** | 3.1694 | 1.6412 | 0.7669 | 0.7260 | 1.8957 | 0.4739 |

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| **Inertia and Chi-Square Decomposition** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Singular Value** | **Principal Inertia** | **Chi- Square** | **Percent** | **Cumulative Percent** | **17   34   51   68   85    ----+----+----+----+----+---** |
| 0.41803 | 0.17475 | 866.58 | 83.61 | 83.61 | \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* |
| 0.14416 | 0.02078 | 103.05 | 9.94 | 93.56 | \*\*\* |
| 0.10175 | 0.01035 | 51.34 | 4.95 | 98.51 | \* |
| 0.04296 | 0.00185 | 9.15 | 0.88 | 99.39 |  |
| 0.03557 | 0.00127 | 6.28 | 0.61 | 100.00 |  |
| Total | 0.20899 | 1036.40 | 100.00 |  |  |
| **Degrees of Freedom = 55** | | | | | |
| **Pr > ChiSq < .0001** | | | | | |

| **Row Coordinates** | | |
| --- | --- | --- |
|  | **Dim1** | **Dim2** |
| **<25H** | -0.8650 | 0.0910 |
| **25-33H** | -0.1020 | -0.2704 |
| **33-41H** | 0.2904 | -0.0159 |
| **41-49H** | 0.4472 | 0.1549 |
| **49-57H** | 0.3226 | 0.0816 |
| **>57H** | 0.2766 | -0.0275 |
| **<25M** | -1.0055 | 0.2446 |
| **25-33M** | -0.4268 | -0.0761 |
| **33-41M** | 0.0641 | -0.0527 |
| **41-49M** | 0.0573 | 0.0220 |
| **49-57M** | -0.2867 | 0.1516 |
| **>57M** | -0.5179 | 0.1907 |

| **Summary Statistics for the Row Points** | | | |
| --- | --- | --- | --- |
|  | **Quality** | **Mass** | **Inertia** |
| **<25H** | 0.9927 | 0.0665 | 0.2427 |
| **25-33H** | 0.9825 | 0.1557 | 0.0633 |
| **33-41H** | 0.9047 | 0.1639 | 0.0734 |
| **41-49H** | 0.9861 | 0.1448 | 0.1574 |
| **49-57H** | 0.9136 | 0.1083 | 0.0628 |
| **>57H** | 0.4517 | 0.0492 | 0.0403 |
| **<25M** | 0.9948 | 0.0423 | 0.2181 |
| **25-33M** | 0.9803 | 0.0845 | 0.0775 |
| **33-41M** | 0.3738 | 0.0807 | 0.0071 |
| **41-49M** | 0.0819 | 0.0565 | 0.0124 |
| **49-57M** | 0.7639 | 0.0321 | 0.0211 |
| **>57M** | 0.9441 | 0.0155 | 0.0240 |

| **Partial Contributions to Inertia for the Row Points** | | |
| --- | --- | --- |
|  | **Dim1** | **Dim2** |
| **<25H** | 0.2849 | 0.0265 |
| **25-33H** | 0.0093 | 0.5477 |
| **33-41H** | 0.0791 | 0.0020 |
| **41-49H** | 0.1657 | 0.1671 |
| **49-57H** | 0.0645 | 0.0347 |
| **>57H** | 0.0215 | 0.0018 |
| **<25M** | 0.2450 | 0.1219 |
| **25-33M** | 0.0881 | 0.0235 |
| **33-41M** | 0.0019 | 0.0108 |
| **41-49M** | 0.0011 | 0.0013 |
| **49-57M** | 0.0151 | 0.0355 |
| **>57M** | 0.0238 | 0.0272 |

| **Indices of the Coordinates That Contribute Most to Inertia for the Row Points** | | | |
| --- | --- | --- | --- |
|  | **Dim1** | **Dim2** | **Best** |
| **<25H** | 1 | 0 | 1 |
| **25-33H** | 0 | 2 | 2 |
| **33-41H** | 1 | 0 | 1 |
| **41-49H** | 2 | 2 | 2 |
| **49-57H** | 0 | 0 | 1 |
| **>57H** | 0 | 0 | 1 |
| **<25M** | 1 | 1 | 1 |
| **25-33M** | 1 | 0 | 1 |
| **33-41M** | 0 | 0 | 2 |
| **41-49M** | 0 | 0 | 2 |
| **49-57M** | 0 | 0 | 2 |
| **>57M** | 0 | 0 | 2 |

| **Squared Cosines for the Row Points** | | |
| --- | --- | --- |
|  | **Dim1** | **Dim2** |
| **<25H** | 0.9819 | 0.0109 |
| **25-33H** | 0.1223 | 0.8602 |
| **33-41H** | 0.9020 | 0.0027 |
| **41-49H** | 0.8805 | 0.1056 |
| **49-57H** | 0.8587 | 0.0550 |
| **>57H** | 0.4473 | 0.0044 |
| **<25M** | 0.9393 | 0.0556 |
| **25-33M** | 0.9501 | 0.0302 |
| **33-41M** | 0.2228 | 0.1510 |
| **41-49M** | 0.0714 | 0.0106 |
| **49-57M** | 0.5970 | 0.1669 |
| **>57M** | 0.8313 | 0.1128 |

| **Column Coordinates** | | |
| --- | --- | --- |
|  | **Dim1** | **Dim2** |
| **SMIP<1** | -0.6731 | 0.1703 |
| **SMIP1-2** | -0.1719 | -0.1311 |
| **x3** | 0.3246 | -0.0739 |
| **SMIP3-4** | 0.4335 | 0.0962 |
| **SMIP4-5** | 0.5447 | 0.2563 |
| **SMIP>5** | 0.6755 | 0.3085 |

| **Summary Statistics for the Column Points** | | | |
| --- | --- | --- | --- |
|  | **Quality** | **Mass** | **Inertia** |
| **SMIP<1** | 0.9961 | 0.1845 | 0.4273 |
| **SMIP1-2** | 0.9171 | 0.3563 | 0.0869 |
| **x3** | 0.9601 | 0.2630 | 0.1453 |
| **SMIP3-4** | 0.8624 | 0.1111 | 0.1215 |
| **SMIP4-5** | 0.9239 | 0.0425 | 0.0798 |
| **SMIP>5** | 0.8065 | 0.0425 | 0.1392 |

| **Partial Contributions to Inertia for the Column Points** | | |
| --- | --- | --- |
|  | **Dim1** | **Dim2** |
| **SMIP<1** | 0.4784 | 0.2575 |
| **SMIP1-2** | 0.0602 | 0.2945 |
| **x3** | 0.1586 | 0.0692 |
| **SMIP3-4** | 0.1195 | 0.0494 |
| **SMIP4-5** | 0.0722 | 0.1345 |
| **SMIP>5** | 0.1111 | 0.1949 |

| **Indices of the Coordinates That Contribute Most to Inertia for the Column Points** | | | |
| --- | --- | --- | --- |
|  | **Dim1** | **Dim2** | **Best** |
| **SMIP<1** | 1 | 1 | 1 |
| **SMIP1-2** | 0 | 2 | 2 |
| **x3** | 1 | 0 | 1 |
| **SMIP3-4** | 1 | 0 | 1 |
| **SMIP4-5** | 0 | 2 | 2 |
| **SMIP>5** | 2 | 2 | 2 |

| **Squared Cosines for the Column Points** | | |
| --- | --- | --- |
|  | **Dim1** | **Dim2** |
| **SMIP<1** | 0.9361 | 0.0599 |
| **SMIP1-2** | 0.5799 | 0.3372 |
| **x3** | 0.9128 | 0.0473 |
| **SMIP3-4** | 0.8219 | 0.0404 |
| **SMIP4-5** | 0.7564 | 0.1675 |
| **SMIP>5** | 0.6673 | 0.1392 |

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